Celebrating Elie Wiesel

STORIES, ESSAYS, REFLECTIONS

Edited by

ALAN ROSEN

1998

University of Notre Dame Press

Notre Dame, Indiana

JOSHUA LEDERBERG

Literacy, the Internet, and the Global Village

ELECTRONIC COMMUNICATION HAS properly been compared with the invention of the printing press as a quantum leap in the reticulation of the human community. We cannot exclude the telephone, telegraph, and telefax as elements in that evolution, but they related to interpersonal correspondence, point-to-point exchanges among identified individuals. The broadcast media—radio and television—have dominated dissemination of information, advertising, and propaganda, but these have lent themselves to exploitation as natural monopolies in the use of the electromagnetic spectrum and have remained mainly in the hands of governments and foci of wealth and power.

The exponential growth of the internet, and particularly of the World Wide Web, has given us new media in the hands of the many: an extraordinary democratization of access to the minds of any who care to look. Beyond e-mail, there are now thousands if not millions of sites where data files of information are posted, and are accessed electronically at the push of a button. Everyman can be his own publisher, his own librarian, his own critic, his own browser. We can just begin to foresee the implications of this liberty for political and economic life, and in popular culture. For a time, I had hoped that e-mail would supplant the telephone, and encourage the return of literacy in personal discourse.[1] I had not counted on the rapidity of the development of the electronic

chips that have brought super-computers (we call them PCs) into every home—and with that the use of the internet for graphics, movies, and voice, so that unadorned text is once again rare. Nevertheless, the bulk of intellectual content remains literary: we properly speak of literature as our legacy.

Electronic storage has come just in time, as our libraries have become overstuffed with tons of paper, much of it crumbling, and journals have escalated to unaffordable prices. Online bibliographic services for citations and abstracts give us a taste of the convenience and thoroughness of what might be available to us as full texts of all contemporary scholarly production, and eventually of what has accumulated in the archives. This move toward extraordinary individual access is already under way, as a do-it-yourself program: pick any topic and you will find many postings of texts, pictures, and movies—often overlapping what has appeared in more traditional formats.

One search engine on my laptop, for example, returned a list of 1,056 documents mentioning Elie Wiesel (and 24,915 for "holocaust"). Most of these documents are not likely his own books, but any manner of news, book reviews, biography, and critical commentary about Wiesel. Much of his personality will be revealed in innumerable interviews, and many a photograph.[2] But the web is an open forum containing unfiltered raw material and consequently includes under this listing a slanderous denunciation from Islamic Radio (Stockholm). On scientific and medical topics, the information available runs the gamut from the latest pictures of Mars, courtesy of NASA, and the abstracts of current medical literature on MEDLINE, to the peddling of snake oil remedies and UFOs.

On the technological front, therefore, we have ample proof of the means to displace the world's libraries and bring its content into every office, classroom, study, kitchen, and bedroom. We are a long way from structuring the economic, legal, and sociological framework to enable this to be an advance of civilization. Some of the root conflicts that question the internet's civilizing worth are exhibited in the ongoing controversy over traffic in pornography. We do not doubt why autocratic regimes have much to fear

from liberating media of communication; at the same time we will argue about the limits of free speech in the dissemination of hate propaganda and of recipes for terrorism. It is next to impossible to contain any of that exuberance or excess within national boundaries, boundaries which are hardly recognized either by the "electromagnetic ether" or by a globalized economy. Burn all the books in one country, and they can be supplanted by a few minutes of electronic data retransmission across the border.

Most creative works—fiction, poetry, drama, music, arts—are financed by royalties from the audiences and enjoyers of the products, sometimes supplemented by subventions from the state and private philanthropies. Scholarly communications have a different base. Their authors are affiliated with institutions for teaching and research, and sales of intellectual products, some textbooks aside, play a small part in the academic economy. The currency of reward is recognition, and this is convertible into preferment for jobs, grants, and status. Far from demanding royalties, the authors are sometimes willing to pay page charges for the privilege of publication. They, and their institutions, already bear their own expenses in mounting their material on the web. This could already be described as a worldwide vanity press.

In this essay, then, I focus on scholarly communications: science and letters, what have been the grist of journals and books, of academic publication. The new media now pose severe challenges to what has passed for earned and attributed authority in the worlds of learning.

On the one hand, scholars will not forego the universal library; on the other, there are mounting frictions and burden-passing. For example, Virginia Polytechnic University recently announced a program of web-mounting all of its masters theses and doctoral dissertations.[3] This provoked a storm of complaint from publishers, and instant anxiety for the authors. The existing print journals would not accept such texts as original publications, rejecting them as candidates for their print versions. The battle is joined concerning which party holds the keys to authenticity, regard, dignity, and the keys to acceptance for academic reward.

This is not just a battle of the pundits: it touches on the legiti-

macy of expertise in every sphere, including the courts. The battle embraces the due process of peer review, the procedure by which personal skills and expertise are subject to the organized skepticism of the academic community. (My entire discourse is plainly rooted in experimental science—and has a strongly pre-postmodern flavor.) The task of the academic community is to plan the succession to the editorial boards and critical discourse of conventional academic literature, and adapt these review procedures to the electronic marketplace.

In principle, this task might entail a simple transposition of standard procedures; and some commercial and university presses are starting to float electronic journals with just those features. But we need a critical apparatus not only for the first offerings of these media, but for all the rest that appears on the web as well. It remains to be seen whether the publishers can find pricing schedules that will appear more reasonable than the thousand-dollar and up subscriptions that pertained to some of the specialty journals put on the market in recent years. Now there is the potential for effective competition from the academically motivated learned societies and from the source institutions—like Virginia Tech—who could in principle convert their own postings to a peer-reviewed roster to match any external overseers, if not to use them.

Meanwhile, the commercial publishers hold copyrights to all the historic material, and many legal and policy battles are in the offing over definitions and practice of "fair use" exceptions. Given the high level of public investment in the conduct of the research whose outcome is embedded in the copyrighted reports, there will be growing resentment over the conversion of the invaluable research results to the exclusive private interest of the publisher. Of course some balance must be struck here, and incentives must not be summarily withdrawn for the value provided by those publishers. The authors, the scientists, have not yet found the means to organize behind their own interests in maximizing the dissemination of their wares, in fact at the lowest feasible price. This is particularly poignant for scholars in poorer countries.

An abundance of further problems remain: notably, who takes responsibility for the accountability of published claims and the authenticity of the texts and authorship? The technical means exist, the equivalent of watermarks and signatures, by which to assure that neither a text nor its authorship has been tampered with. But this presupposes a durable archive, a locus of responsibility for preserving the heritage of material which it is no longer feasible to store as marks on paper, if only for the impossibility of efficient search and retrieval. The technical problems are formidable—less the durability of the physical item like a CD platter than the unlikelihood that the machines and software to read the incunabula will remain available over the decades and centuries. To avert great losses will require institutions for the maintenance of obsolete machines: try to find a vacuum tube for a 1930 radio today! This problem of maintenance becomes ever more difficult to envisage with the rapidly increasing density and sophistication of the storage systems. An alternative or backup will be the refreshment of storage every decade or two, whilst media are in transition. (Now is a good time to be sure all of your 5-inch floppy disks have been converted to the 3.5-inch format, and perhaps to the latest CDs as well. Ten years from now, you will have to resort to the antique shops; in twenty, the specialty museums.) Some students in computer science recently asked me to exhume some old "IBM" punch cards—they had never seen them. And I would be hard put now to find a machine that could read them.

We have to think hard about who pays for this preservation and restoration; and how to organize the triage that will define what is left of our heritage. There will be great expectations that someone else is doing it.

As we observe the expansion of the global electronic library, we can foresee that it becomes our principal resource for information and lies. Many people have spoken how electronic media could lend greater efficiency to educational processes, but that just scratches the surface. For one matter, vocabulary in language learning should become largely superfluous: programs exist today that could furnish an instantaneous word-for-word translit-

eration of texts. With that facility, a very different kind of learning becomes important for students, for everyone, interested in partaking of different literate cultures. Automatic translations of unpredictable quality and the subject matter for many jokes are not far behind. But such translations are dangerous in the hands of the illiterate, or wrongly lettered user. The well-educated will be those who have experienced many such translations and learned what to take seriously, where are the meaningful ambiguities, where the ludicrous errors.

The same applies to the overall abundance of purported knowledge on the net. "Reading the web," developing critical judgment about assessing the claims made, learning how to access critical sources and further opinions, should become the central goal of modern education. This is *explication de texte* in a new form, probably the most relevant preparation for the new age.

The task of teachers is to participate in the critical discourse that can enlarge the meaning, exemplify the process, and enhance the dignity of the rich palette before us. Not every generation will use the same primary medium, but the message for humanity may echo timelessly round this planet and beyond.[4] Computer maven or not, with 1,056 (probably many more) references on the web, Elie Wiesel is already a pioneer in that process. And his festschrift is rewritten day-by-day.

NOTES

1. J. Lederberg, "Digital Communications and the Conduct of Science: The New Literacy." *Proceedings of the IEEE* 66, no. 11 (1978): 1314–19.

2. Try URL=: http://www.achievement.org

3. http://www.ndltd.org

4. J. Lederberg, "Options for the Future: Symposium on Electronic Publishing, ICSU/UNESCO, February 22, 1996, Paris," *D-Lib Magazine*, May 1996, ISSN 1082–9873. URL=: http://www.dlib.org